

A NEW SPECIES OF THE GENUS APHELENCHOIDES NEMATODE FROM CHINA

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Abstract A new species of *Aphelenchoides* nematode in *Aphelenchida*, *A. parabrushmucronatus* was found in the soil of *Eleusine indica* at Rushan City (36°N, 121°E) in Shandong Province of China in 2002. Female nematodes were medium-length. Head high, offset deeply. Median oesophageal bulb ovoid in shape. Ovary outstretched, oocytes arranged in a single row. Spermathea and post uterine sac packed with round sperms. Female tail cylindrical had a test-tube-brush-like mucro on the center of tail end. *Aphelenchoides appendurus* Singh, 1967 resembles this new species in shape but differs from the latter in having two incisures, much bigger body, stylet, and shorter tail ($L = 720\text{--}880\text{ }\mu\text{m}$; stylet = $16\text{--}17\text{ }\mu\text{m}$; tail = $38.4\text{ }\mu\text{m}$ in *A. appendurus*). *Aphelenchoides seiachicus* Nesterov, 1973 also resembles this new species in morphology but differs from the latter in having much smaller body, stylet and tail ($L = 370\text{--}420\text{ }\mu\text{m}$; stylet = $9.5\text{ }\mu\text{m}$; $c = 3$ in *A. seiachicus*).

Key words *Aphelenchida*, *Aphelenchoididae*, *Aphelenchoides*, new species, China.

Aphelenchoides Fischer, 1894 is the maximum genus of *Aphelenchida*, of which more than 180 species have been published, including 145 valid species (Shahina, 1996). Most species of *Aphelenchoides* are free living and are widely distributed in soil, decaying plant material, etc. Some species are plant-parasitic which destroying our vegetables, fruit, crops, etc (Shahina, 1996). A new species of *Aphelenchoides* nematode was found in 2002.

1 Materials and Methods

The samples were collected from the rhizosphere soil of *Eleusine indica* at Rushan City in Shandong Province of China in May 2002.

First, nematodes were isolated from the soil by washing, sieving and centrifugal action. Secondly, the living nematodes were killed by gentle hot. Last, nematodes were fixed in TAF (LIU, 1995).

The fixed nematodes were observed, photographed and measured with the aid of light microscope. Some slight morphological characteristics, such as mucro of tail, incisures of lateral field, were observed under 1 600 multiples by Sony super light microscope.

2 Results

2.1 Measurements (the meaning of symbol in measurements refer to FENG, 2008)

Holotype (Unit: μm) $L = 510$, $W = 19.7$, $a = 25.8$; $b = 8.6$, $b = 4.7$, $c = 11.5$, $c = 4.5$, $V = 65.6$, Stylet = 13.6 ; Tail = 44.4 , MBL = 12.3 , MBW = 11.1 , $G_1 = 42.3$, $G_2 = 12.1$, PUS/VBW = 3.3 , PUS/V-A = 0.47 , AM = 53.1 .

Paratypes (, $n = 14$) (Unit: μm) $L = 521.3 \pm 25.9$ ($505.0\text{--}560.0$), $W = 22.8 \pm 2.4$ ($19.7\text{--}24.7$), $a = 23.0 \pm 2.1$ ($20.7\text{--}25.8$), $b = 8.3 \pm 0.6$ ($7.7\text{--}9.1$), $b = 4.4 \pm 0.2$ ($4.3\text{--}4.7$), $c = 11.8 \pm 0.6$ ($11.4\text{--}12.6$), $c = 4.4 \pm 0.1$ ($4.2\text{--}4.6$), $V = 66.4 \pm 1.7$

($65.4\text{--}68.9$), Stylet = 13.0 ± 0.7 ($12.3\text{--}13.6$), Tail = 44.2 ± 1.1 ($43.8\text{--}45.1$), MBL = 12.6 ± 0.6 ($12.3\text{--}13.6$), MBW = 12.0 ± 0.6 ($11.1\text{--}12.3$), $G_1 = 41.4 \pm 1.9$ ($38.8\text{--}43.1$), $G_2 = 12.0 \pm 2.6$ ($9.8\text{--}15.7$); PUS/VBW = 2.9 ± 0.4 ($2.5\text{--}3.3$), PUS/V-A = 0.48 ± 0.09 ($0.38\text{--}0.61$), AM = 55.8 ± 2.7 ($53.1\text{--}59.2$).

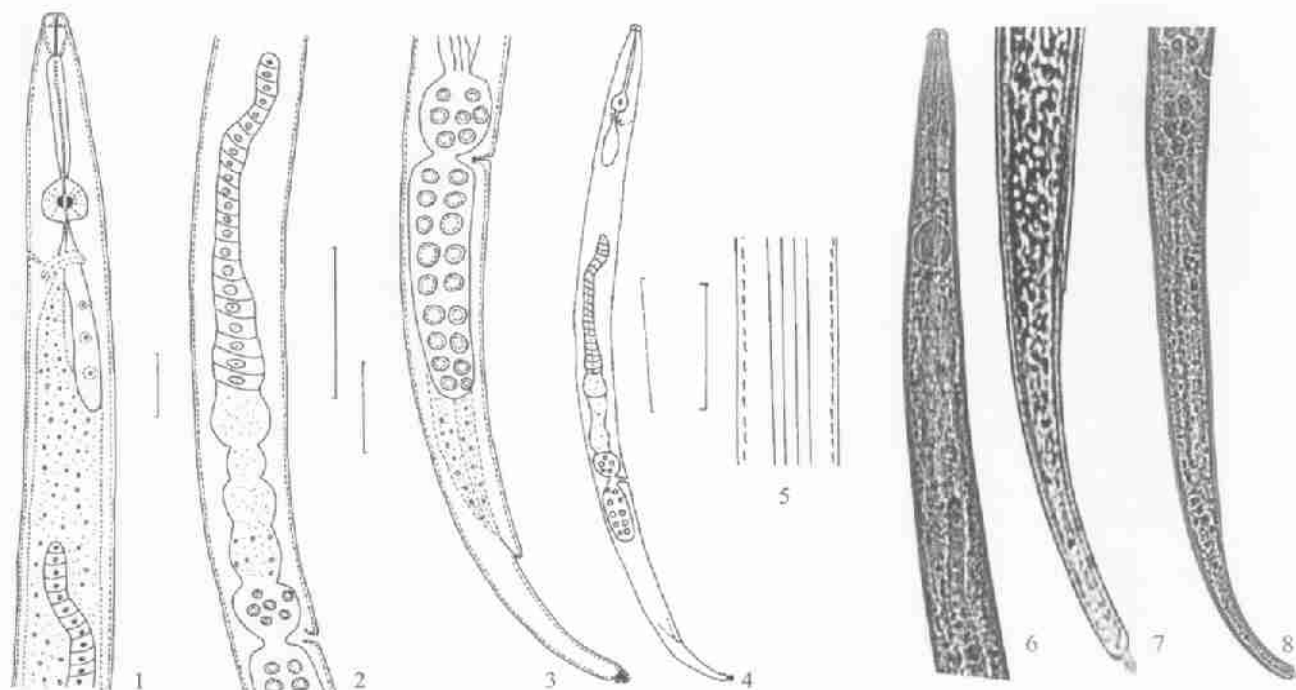
2.2 Description (Figs. 1-8)

Female. Body were medium-length, slender, tapering at both end, and cured ventrally when relaxed by gentle hot. Lateral field marked by four incisures. Head high, offset deeply. Stylet with small basal thickenings was gentle. Prominent muscular median bulb was ovoid in shape, in the center of which was a conspicuous valve. Oesophageal glands were lying dorsally along intestine. Excretory pore situated one median bulb length behind the median bulb and it opposite to nerve ring or ahead of. The length from anterior end to excretory pore was $72\text{ }\mu\text{m}$. Vulva a transverse slit, situated posterior at 65%-69% of the body length. Ovary outstretched, oocytes arranged in a single row. Spermathea and post uterine sac packed with round sperms. Post-vulval uterine sac well developed had two rows round sperms. Female tail cylindrical or stick had distinct anus and was about 4.5 anal-body-widths-length. Body became narrowing ventrally after anus and on the center of tail end was a test-tube brush-like mucro encircling spiny hair.

Male. Not found.

2.3 Diagnosis and relationship

These new nematodes had following outstanding characteristics: 1) female nematodes were medium-length, lateral field marked by four incisures; 2) head high, offset deeply; 3) median oesophageal bulb was ovoid in shape; 4) female tail cylindrical or stick-like had



Figs. 1-8. *Aphelenchoides parabrushmucronatus* sp. nov. . 1. Anterior portion of female. 2. Female ovary. 3. Posterior portion of female. 4. Female. 5. Lateral field, notes 4 incisures. 6. Anterior portion of female. 7. Female tail. 8. Posterior portion of female. Scale bars : 1, 5 = 20 μm , 2 = 50 μm , 3 = 30 μm , 4 = 100 μm multiple. 6, 8. 600 \times , 7. 1 500 \times .

a test-tube brush-like mucro on the center of tail end; 5) reproduction developed well, ovary outstretched, oocytes arranged in a single row. Spermatheca and post uterine sac packed with round sperms. These new nematodes had outstanding characteristics, which differentiated from other species of *Aphelenchoides* easily. There is no one species of *Aphelenchoides* that have been published alike with the new species by consulting document. This new species is named by the shape of mucro on the female tail end that looks like a test-tube brush. Its name is *Aphelenchoides parabrushmucronatus*. This new species belongs to *Aphelenchoides*, *Aphelenchoidinae*, *Aphelenchoididae*, *Aphelenchoidoidea*, *Aphelenchina*, *Aphelenchida* (Hunt, 1993; Liu, 2004; Harish, 1999; Feng, 2008).

Aphelenchoides appendurus Singh, 1967 resembles this new species in shape but differs from the latter in having two incisures in lateral field, much bigger body, stylet, and having much shorter tail ($L = 720\text{--}880\ \mu\text{m}$; stylet = $16\text{--}17\ \mu\text{m}$; tail = $38.4\ \mu\text{m}$; $c = 3$ in *A. appendurus*). (Hunt, 1993)

Aphelenchoides seiachicus Nesterov, 1973 also resembles this new species in having no males and morphology but differs from the latter in having much smaller body, stylet and tail ($L = 370\text{--}420\ \mu\text{m}$; stylet = $9.5\ \mu\text{m}$; tail = $30\ \mu\text{m}$; $c = 3$ in *A. seiachicus*) (Nesterov, 1973).

2.4 Type specimens

The type specimens of new species were saved in Nematology Laboratory of Qingdao Agriculture University, and the number was 02-361.

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滑刃属一新种记述（滑刃目，滑刃科）

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摘 要 2002 年从山东省乳山市牛筋草的根际土壤中发现滑刃属 1 新种，类刷尾滑刃线虫 *Aphelenchoides parabrushmucronatus* sp. nov. 。该虫具有以下特征：雌虫虫体中等；唇区较高，缢缩明显；中食道球卵圆形；生殖系统发育良好，卵母细胞单列，受精囊和后阴子宫囊都含较大的圆形精子；雌虫尾圆柱形，尾端中间具有 1 试管刷状尾尖突。 *A. appendurus* Singh ,

1967 在形态上与新种相似，区别在于前者有两条侧线，虫体和口针更长，尾巴相对较短（ $L = 720\text{--}880\text{ }\mu\text{m}$ ； $\text{stylet} = 16 \sim 17\text{ }\mu\text{m}$ ； $\text{tail} = 38.4\text{ }\mu\text{m}$ ）。 *A. seiachicus* Nesterov , 1973 在形态上也与新种相似，区别在于前者虫体更小，口针、尾巴更短（ $L = 370\text{--}420\text{ }\mu\text{m}$ ； $\text{stylet} = 9.5\text{ }\mu\text{m}$ ； $c = 3$ ）。

关键词 滑刃目，滑刃科，滑刃属，新种，中国.

中图分类号 Q959.17